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EXAMINER

LARKIN, DANIEL SEAN

ART UNIT PAPER NUMBER

2856

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/944,247

Applicant(s)
NEO et al.

Examiner
Daniel Larkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ONE (1) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-97 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claims 1-97 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13, drawn to an apparatus for detecting characteristics of a microelectronic substrate that utilizes a non-capacitive detection device for the first surface, classified in class 73, subclass 105.
 - II. Claims 14-16, drawn to an apparatus for detecting characteristics of a microelectronic substrate that utilizes at least one of a contact probe or radiation receiver as a topographical feature detector for the first surface and a support member that supports the substrate without contacting the conductive structures located on the second surface, classified in class 73, subclass 105.
 - III. Claims 17-24, drawn to an apparatus for detecting characteristics of a microelectronic substrate that utilizes at least one of a contact probe or radiation receiver as a topographical feature detector for the first surface, classified in class 73, subclass 105.
 - IV. Claims 25-31 and 82-87, drawn to an apparatus and method for detecting characteristics of a microelectronic substrate that utilizes a roughness detector comprised of a contact probe and an actuator connected to at least one of the roughness detector and the support member to move at least one of the two, classified in class 73, subclass 105.

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- V. Claims 32-37 and 88-93, drawn to an apparatus for detecting characteristics of a microelectronic substrate that utilizes a roughness detector comprised of a radiation receiver and an actuator connected to at least one of the roughness detector and the support member to move at least one of the two, classified in class 73, subclass 105.
- VI. Claims 38, 39, and 45-48, drawn to an apparatus for detecting characteristics of a microelectronic substrate that utilizes at least one of a contact probe or radiation receiver as a topographical feature detector for the first surface and first and second detectors proximate the second surface of the substrate, classified in class 73, subclass 105.
- VII. Claims 40-44, drawn to an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topography detection means that detects at least one of roughness and thickness variation of a first surface of the substrate and second topography detection means to detect a characteristic of raised conductive structures present on the second surface of the substrate, classified in class 73, subclass 105.
- VIII. Claims 49-62, drawn to a method of processing a microelectronic substrate, classified in class 73, subclass 105.

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- IX. Claims 63-77, drawn to a method for detecting characteristic of a microelectronic substrate having a first surface that has features that do not include conductive connection structures, classified in class 73, subclass 105.
- X. Claims 78-81, drawn to a method in a computer for detecting characteristic of a microelectronic substrate, classified in class 73, subclass 105.
- XI. Claims 94-97, drawn to a method for detecting characteristics of a microelectronic substrate, classified in class 73, subclass 105.

2. The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group II are not found in Group I. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes at least one of a contact probe or a radiation receiver to detect characteristics of the first surface of the substrate, rather than a non-capacitive detector required by the claims of Group I. The Group I claims could read on an optical or visual inspection process.

4. Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the

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particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group III are not found in Group I. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes at least one of a contact probe or a radiation receiver to detect characteristics of the first surface of the substrate, rather than a non-capacitive detector required by the claims of Group I. The Group I claims could read on an optical or visual inspection process.

5. Inventions I and IV (claims 25-31) are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group IV are not found in Group I. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a contact probe to perform roughness measurements, rather than a non-capacitive detector required by the claims of Group I. The Group I claims could read on an optical or visual inspection process or instead utilizing a radiation receiver to detect characteristics of the first surface.

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6. Inventions I and IV (claims 82-87) are related as process and apparatus for its practice.

The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a non-capacitive detection apparatus, as required by the claims of Group I. This non-capacitive technique could utilize an optical or visual roughness determination or utilize a radiation receiver to determine roughness of the first surface of the substrate.

7. Inventions I and V (claims 32-37) are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group V are not found in Group I. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a radiation receiver to perform roughness measurements, rather than a non-capacitive detector required by the claims of Group I. The Group I claims could read on an optical or visual inspection process or instead utilize a contact probe for roughness measurements.

8. Inventions I and V (claims 88-93) are related as process and apparatus for its practice.

The inventions are distinct if it can be shown that either: (1) the process as claimed can be

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practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a non-capacitive detection apparatus, as required by the claims of Group I. This non-capacitive technique could utilize an optical or visual roughness determination or alternatively, utilize a contact probe to determine roughness of the first surface of the substrate.

9. Inventions I and VI are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VI are not found in Group I. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a contact probe and/or a radiation receiver to perform roughness measurements, rather than a non-capacitive detector required by the claims of Group I. The Group I claims could read on an optical or visual inspection process.

10. Inventions I and VII are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination

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as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VII are not found in Group I. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes at least one of a contact probe and a radiation receiver to perform roughness measurements, rather than a non-capacitive detector required by the claims of Group I. The Group I claims could read on an optical or visual inspection process.

11. Inventions II and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group III are not found in Group II. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topographical feature detector for a first substrate surface and a second topographical detector for the second surface of the substrate. The claims of Group II, alternatively require an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topographical feature detector for a first substrate surface and a support member which supports the substrate without contacting the conductive structures present of the second surface of the substrate.

12. Inventions (II and III) and IV (claims 25-31) are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the

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combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group IV are not found in Groups II or III. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a contact probe to perform roughness measurements, rather than a radiation receiver which may be utilized in the inventions recited in the claims of Groups II and III.

13. Inventions (II and III) and IV (claims 82-87) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a radiation receiver, as required by the claims of Groups II and III.

14. Inventions (II, III, IV (claims 25-31)) and V (claims 32-37) are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group V are not found in Groups

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II-IV. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a radiation receiver to perform roughness measurements, rather than a contact probe which may be utilized in the inventions recited in the claims of Groups II-IV.

15. Inventions (II and III) and V (claims 88-93) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a contact probe, as required by the claims of Groups II and III.

16. Inventions (II and III) and VI are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VI are not found in Groups II or III. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a contact probe and/or a radiation receiver to perform roughness measurements on a first surface and second detectors to detect surface characteristics of a second surface, rather than utilizing a contact probe and/or a radiation receiver to perform

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roughness measurements on a first surface which does not include conductive connection structures which is required by the claims of Groups II and III.

17. Inventions II and VII are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VII are not found in Group II. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topographical feature detector for a first substrate surface required only to have a roughness feature and a second topographical detector for the second surface of the substrate. The claims of Group II, alternatively require an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topographical feature detector for a first substrate surface that does not include conductive connection structures and a support member which supports the substrate without contacting the conductive structures present of the second surface of the substrate.

18. Inventions III and VII are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the

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limitations of Group II are not found in Group VII. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topographical feature detector for a first substrate surface that does not include conductive connection structures and a second topographical detector for the second surface of the substrate. The claims of Group VII, alternatively, require that a first surface only have a roughness feature and the first topography detection means measures at least one of a roughness and thickness variation of the first surface of the substrate.

19. Inventions IV (claims 82-87) and V (claims 32-37) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a radiation receiver, as required by the claims of Group V.

20. Inventions IV (82-87) and V (claims 88-93) are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group V are not found in Group IV. The subcombination has separate utility such as a method for detecting characteristics of a

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microelectronic substrate that utilizes a radiation receiver to perform roughness measurements, rather than a contact probe which is required by the claims of Group IV.

21. Inventions IV (claims 25-31) and VI are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VI are not found in Group IV. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that may utilize a radiation receiver to perform roughness measurements, rather than a contact probe which is required by the claims of Group IV.

22. Inventions IV (claims 82-87) and VI are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a radiation receiver, as required by the claims of Group VI.

23. Inventions IV (claims 25-31) and VII are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the

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subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VII are not found in Group IV. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topography means comprised of at least one of a contact probe and a radiation receiver to detect at least one of a roughness or thickness variation of the first surface of the substrate, and a second topography detection means to detect a characteristic of the second surface of the substrate.

24. Inventions IV (claims 82-87) and VII are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one utilizes a radiation receiver for the first surface and a second topography detection means for the second surface of the substrate.

25. Inventions V (claims 32-37) and VI are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as

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claimed because all of the limitations of Group VI are not found in Group V. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that may utilize a contact probe to perform roughness measurements, rather than a radiation receiver which is required by the claims of Group V.

26. Inventions V (claims 88-93) and VI are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one utilizes a contact probe and may also use a radiation receiver, as required by the claims of Group VI.

27. Inventions V (claims 32-37) and VII are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VII are not found in Group IV. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a first topography means comprised of at least one of a contact probe and a radiation receiver to detect at least one of a roughness or thickness variation

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of the first surface of the substrate, and a second topography detection means to detect a characteristic of the second surface of the substrate.

28. Inventions V (claims 88-93) and VII are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one utilizes a contact probe for the first surface and a second topography detection means for the second surface of the substrate.

29. Inventions (I-III, IV (claims 25-31), V (claims 32-37), VI, and VII) and VIII are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a non-capacitive detection apparatus as required by the claims of Group I; or an apparatus that utilizes a contact probe or a radiation receiver as required by the claims of Groups II-VII. Furthermore, the process appears to create a substrate having the features located on the first and second surfaces, such that a calibration detection process takes place.

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30. Inventions IV (claims 82-87) and VIII are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VIII are not found in Group IV. The subcombination has separate utility such as an apparatus for processing a microelectronic substrate where detecting characteristics are manufactured onto the first and second surfaces of the substrate. This technique appears to be a calibration process for a roughness detector.

31. Inventions V (claims 88-93) and VIII are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group VIII are not found in Group V. The subcombination has separate utility such as an apparatus for processing a microelectronic substrate where detecting characteristics are manufactured onto the first and second surfaces of the substrate. This technique appears to be a calibration process for a roughness detector.

32. Inventions I and IX are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another

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materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a non-capacitive detection apparatus as required by the claims of Group I. This non-capacitive technique could utilize an optical or visual roughness determination.

33. Inventions (II, III, and VII) and IX are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes both a contact probe and a radiation receiver to measure topographical features as the claims of Groups II, III, and VII require.

34. Inventions IV (claims 25-31) and IX are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a contact probe as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group IV.

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35. Inventions IV (claims 82-87) and IX are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group IV are not found in Group VIII. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a contact probe as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group IV.

36. Inventions V (claims 32-37) and IX are related as process and apparatus for its practice.

The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a radiation receiver as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group V.

37. Inventions V (claims 88-93) and IX are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed

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does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group V are not found in Group IX. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a radiation receiver as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group V.

38. Inventions VI and IX are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that utilizes a contact probe and a radiation receiver as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group VI.

39. Inventions VIII and IX are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination

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as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group IX are not found in Group VIII. The subcombination has separate utility such as a method for detecting characteristics of a microelectronic substrate that may or may not have conductive features present on a second surface of the substrate, rather than a method of processing a microelectronic substrate, wherein the methodology appears to create a substrate having specific features to be detected on the first and second surfaces of the substrate as recited in the claims of Group VIII.

40. Inventions (I-III, IV (25-31), V (claims 32-37), VI, and VII) and X are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that uses a specific type of roughness detector or topographical feature detector recited in the claims of Groups I-VII. The steps measured in the claims of Group X do not give specifics as to how the measurement values are gathered.

41. Inventions IV (claims 82-87) and X are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as

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claimed because all of the limitations of Group IV are not found in Group X. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a contact probe as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group IV.

42. Inventions V (claims 88-93) and X are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group V are not found in Group X. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a radiation receiver as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group V.

43. Inventions VIII and X are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the

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limitations of Group X are not found in Group VIII. The subcombination has separate utility such as a method in a computer for detecting characteristics of a microelectronic substrate by receiving a plurality of data representative of distance measurements, wherein the claims of Group VIII appears to create a substrate having specific features to be detected and measured on the first and second surfaces of the substrate.

44. Inventions IX and X are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group X are not found in Group IX. The subcombination has separate utility such as a method in a computer for detecting characteristics of a microelectronic substrate by receiving a plurality of data representative of distance measurements, wherein the claims of Group IX detects the roughness of the first surface of the substrate using a topographical detection device.

45. Inventions (I-III, IV (25-31), V (claims 32-37), VI, and VII) and XI are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a materially different apparatus, such as one that uses a specific type of roughness detector or topographical feature

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detector recited in the claims of Groups I-VI. The steps measured in the claims of Group XI do not give specifics as to how the measurement values are gathered.

46. Inventions IV (claims 82-87) and XI are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group IV are not found in Group XI. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a contact probe as a roughness detector and an actuator which moves at least one of a support member or the roughness detector with respect to the other as required by the claims of Group IV.

47. Inventions V (claims 88-93) and XI are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group V are not found in Group XI. The subcombination has separate utility such as an apparatus for detecting characteristics of a microelectronic substrate that utilizes a radiation receiver as a roughness detector and an actuator which moves at

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least one of a support member or the roughness detector with respect to the other as required by the claims of Group V.

48. Inventions VIII and XI are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group XI are not found in Group VIII. The subcombination has separate utility such as a method for detecting characteristics of a microelectronic substrate comprising detecting a roughness of a first surface of the substrate and detecting a characteristic of at least one protruding conductive feature on the second surface of the substrate.

49. Inventions IX and X are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group XI are not found in Group IX. The subcombination has separate utility such as a method for detecting characteristics of a microelectronic substrate comprising detecting a roughness of a first surface of the substrate and detecting a characteristic of at least one protruding conductive feature on the second surface of the substrate.

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50. Inventions X and XI are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because all of the limitations of Group XI are not found in Group X. The subcombination has separate utility such as a method for detecting characteristics of a microelectronic substrate comprising detecting a roughness of a first surface of the substrate and detecting a characteristic of at least one protruding conductive feature on the second surface of the substrate.

51. Because these inventions are distinct for the reasons given above and the search required for one group may not be required for any other group, restriction for examination purposes as indicated is proper.

52. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

53. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel Larkin whose telephone number is (703) 308-6724. The Examiner can normally be reached on Monday-Friday from 7:00 AM - 4:00 PM.

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Hezron E. Williams, can be reached on (703) 305-4705. The FAX telephone number for this Technology Center (TC 2800, unit 2856) is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Daniel Larkin

25 March 2003


DANIEL S. LARKIN
PRIMARY EXAMINER